DOCUMENT RESUME

ED 233 805 PS 013 802

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TITLE Effects of Group Day Care in the First Two Years.
PUB DATE Apr 83
NOTE 10p.; Paper presented at the Biennial Meeting of the Society for Research in Child Development (Detroit, MI, April 21-24, 1983).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Academic Achievement; Comparative Analysis; *Day Care Centers; Early Childhood Education; *Elementary School Students; Foreign Countries; *Infants; Influences; Inservice Teacher Education; Language Acquisition; Low Income Groups; Males; *Mothers; *Preschool Children; Social Development
IDENTIFIERS Babysitters; Bermuda; *Home Child Care

ABSTRACT

Because many children in Bermuda receive substitute care while their mothers work, several comparative studies were made of effects of maternal and nonmaternal care on children's development. Findings of an initial investigation indicated that 2-year-old children who had been in group-center care differed unfavorably from children in other forms of care on several measures. Subsequent analyses of data from children in out-of-home care before age 2 also revealed adverse effects of early group care. Particularly for males in care during their second year, care situations consisting of many hours per week in large groups with many children per caretaker were associated with lower intelligence, poorer verbal skills, and shorter attention than exhibited by children receiving other types of care. Additional studies provided support for the hypothesis that qualities of the day care environment affect the developmental levels of children's language and social development. Investigations of the long-term outcomes of group care indicated that no significant negative effects of infant group care existed in children 4 years of age; however, 4-year-old children in care at sitters' homes from 2 to 4 years of age appeared less intelligent, more passive, and more introverted than children in home care. Nonetheless, at 8 years of age, children who had experienced sitter care were found to be superior in math to children who had experienced infant group care and infant maternal care. (RH)

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Effects of Group Day Care in the First Two Years[1]

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After assessing the first two cohorts of two- to two-and-a-half year olds in the Devonshire Project, described in the earlier presentations (Ming, Note 1; Scarr, Note 2), we realized that the great majority of children spend full-time in non-maternal care. Because most mothers of young children are employed, about half of Devonshire children are in substitute care during the first year of life and over three-quarters during the second year.

The discovery of the high frequency of nonmaternal care prompted several research efforts. The first type looked at the relationship between the mode of caring for the child in the mother's absence and the immediately succeeding behavior of the child. The second type looked at variation in group care, and how the quality of group care was related to concurrent child behavior. The third type looked at the long term relationship between the mode of care experienced in the early years of life and the behavior of the child in later years.

I'll proceed in chronological order, providing an account of the development of each of our day care studies, a summary of the findings, a few words about how subsequent studies were sparked from earlier results.

As part of the pretreatment assessment battery of the Verbal Interaction Project, a detailed history of the child's care during the first two years of life was obtained from the mother. These data show that, in the second

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[1]Contribution to a symposium entitled "Government Promotes Child Development: The Case Study of Bermuda," chaired by Kathleen McCartney at the Biennial Meeting of the Society for Research in Child Development. Detroit, MI, April, 1983.

year of life, about a quarter of Devonshire children are cared for at home by the mother, another quarter at home by a relative or sitter, the third quarter go to a sitter or day care mother's home, and the remaining quarter attend a group day care center. Given the interest of the Bermuda Government in optimizing child development and our own interest in behavioral development, we were eager to examine the child behavior variables in the pre-assessment battery for differences in the behavior of the 2-year-olds as a function of their previous mode of care. Briefly, Devonshire children who experienced predominantly center group care in the first two years of life, at 2 years of age were found to have poorer communication skills than children cared for at home, according to the mothers' own report and ratings by our testers. During the assessment, which occurred in the home, center group infants were rated by the testers as more apathetic, less attentive, and less socially responsive. They were also judged by the testers to be more deviant than children cared for at home. No statistically reliable differences were found among children in other forms of care; that is, in care at home by the mother or relative, or in care at a sitter's home. Thus, at two years of age, children who had been in group center care differed from children in other forms of care in an unfavorable direction on several measures.

To gain more information on the parameters of care that may be influencing child development, I undertook a separate analysis including only those children in out-of-home care before age 2. Controlling for familial advantage, these analyses showed that care conditions consisting of many hours per week in large groups and with many children per caretaker were associated with lower intelligence, poorer verbal skills, and shorter attention. These negative affects of group size and caretaker ratio on attention, verbal skill, and intelligence were especially marked in males and for care experience during the

second year of life, the period during which language skills are developing most rapidly. Furthermore, children rated as deviant at 2 years of age were predominantly those who had experienced care in groups with unfavorable child-caretaker ratios.

This evidence of apparent adverse effects of early group care for Bermudian children prompted us to examine the effects of group care more closely and to seek the assistance of the Bermuda Government through the Ministeries of Education and Social Welfare, and the Child Development Project. Sandra Scarr, in collaboration with Kathy McCartney, Deborah Phillips, Susan Grajek and myself, prepared a research proposal that also received funding from the W. T. Grant Foundation. Our interest in this research was very keen because of the growing rate of maternal employment and because of the policy issues facing our government regarding the support and regulation of infant day care.

Two fundamental questions confronted us: one, are the effects of group care related to the characteristics of individual centers? Might not the effects of center care be related to parameters of care beyond those of size and child caretaker ratio? And, two, how enduring are these effects? Will they wash out by the time the child is in school? And are there any delayed positive or negative effects of group care?

We assessed the quality of nine of the ten centers that offered care to children from infancy through the preschool years and that had been in operation five years or more. The assessment of quality, which was largely planned, and I might add, sensitively executed by Kathleen McCartney, included teacher-child ratios at each age level, staff training, play space, program, quality of educational materials, etc. In addition, language was systematically sampled in each center via audio-recording.

These quality ratings provided the basis for four studies, three studies of children 3- to 5-years of age, and a fourth study of children 8 to 9 years of age in the public school, some of whom had attended these target centers. A team of 18 Bermudian college students, whose services were provided by the Bermuda Government, visited the children's homes and gathered data from the parents of 166 3- to 5-year-olds and also from the parents of 155 8- to 9-year-olds in a study to be discussed later.

The study of language development, conducted by Kathleen McCartney (in press) provided strong evidence that children's language development is affected by the nature and extent of their interactions with their care-givers in the day care center. Children from high quality centers and centers with high levels of care-giver functional speech and more teacher directed activities performed better on tests of language development. On the other hand, children from centers with extensive free play performed less well on language tests. It is interesting to note that amount and variety of play equipment in centers were unrelated to children's level of language skill.

Further analyses that Sandra Scarr has done on the data from the 3- to 5-year-olds indicate positive relationships between caregivers' ratings of childrens' social and cognitive behavior and the quality of the centers they attend, after home background and length of day care experience have been controlled (McCartney, Scarr, Phillips, Grajek, & Schwarz, 1982).

While all eight of the proprietary day care centers studied have children from diverse family backgrounds, the Government Center is unique in that all of the children at this high quality center are of low socioeconomic background. In order to evaluate specifically the effects of this particular program Kathleen McCartney has selected control children from the ~~poor~~ lower quality centers who were matched on family background variables with children from the

Government Center and compared the two groups on a number of variables. The superiority of the children in the Government Center was most impressive.

This set of three reports on the 3- to 5-year-olds in centers of varying quality provide support for the hypothesis that qualities of day care environments affect the developmental levels of language and social behaviors of the children in them. These studies led us to recommend training for caregivers on three topics: child development; child care; and age-appropriate materials and activities. Within three months, the Bermuda College had (a) launched the first series of these three courses, (b) had publicized them to child care centers, and (c) had recruited the first classes. By September of 1982 the third cohort of child care workers was enrolled in the series.

In addition, the Ministry of Health and Social Services is considering additional requirements for day care centers, including programming and staff training. More Government-sponsored day care may also be planned.

It is certainly heartening to a researcher to see this kind of responsiveness by Government institutions. Such responsiveness also increases the investigators burden of responsibility to weigh the evidence carefully before making recommendations. I believe our evidence that the quality of day care environments has an effect on child behavior is quite strong.

I have yet to address the second question, that of whether the apparently negative effects of infant group care in the first two years of life are enduring. Data that address that question are the results of my very recent analyses of the data from the follow-up of children from the Verbal Interaction Project sample (Schwarz, Note 3). Their behavior at 4 years of age was examined as a function of mode of care in the first two years of life and also mode of care in the third and fourth years of life. The good news is that, at 4 years of age, the children who had been in infant group care and who were

withdrawn and deficient in verbal expression at 2 years of age were no longer reliably different from comparison ~~children~~ children who had been in home care or sitter care during the first two years. In other words, the children who had been in infant group care had recouped some of their deficiency and the three groups looked much more alike at 4 years of age. It seems likely to me that, as children got older, the programs offered to them in the very same centers may have provided them with the stimulation necessary to more nearly realize their potential.

Now for the bad news! And this is really "new" news, because I just completed these analyses three days ago. At four years of age, it is the children who have been in care at the sitter's home for the past two years who look bad. Despite the fact that children in sitter care are slightly more advantaged in family background, at four years of age, they are significantly less intelligent, more passive, and more introverted than children in home care, and the <u>males</u> in sitter care are strikingly <u>deviant</u>. Children who have been in center care for the preceding two years are intermediate on these dimensions at 4 years of age. I suspect that children in sitter care during the third and fourth years receive less cognitive and social stimulation than is provided to their counter parts in the centers at the same age. Unfortunately, this is merely a speculation, since we have no data on the typical experience of a child in sitter care in Bermuda.

Again, on the brighter side, I recently completed a complex analysis of our data on the 8- to 9-year-olds in the public schools as a function of three kinds of care experience in the first two years of life, maternal home care, care at the sitter's and care in a group center. Despite a control for familial advantage, the children in sitter care were significantly

superior in math to children in both infant group care and infant maternal care. However, there was a tendency for males in early sitter care to be more introverted at 8 years of age. Thus, while the VIP four year olds in sitter care are currently lagging in cognitive development, it does not mean that they will continue this trend forever.

In view of our strong evidence that quality of care makes a difference and the equally strong evidence from the VIP study that change in care conditions is associated with changes in behavior, it seems especially important to continue to follow the VIP children on into the school years. Will the apparently negative effects of sitter-care at 3 and 4 years of age dissipate in this sample by school age? Or will they retain some scars of their preschool care experience? Longitudinal study of this sample at school age will provide a potent compliment to the cross-sectional data we have in hand on the 8 to 9 year olds.

As you might have guessed, we hope to have the continued cooperation and interest of the Bermuda government in following up the VIP sample. I believe that both they and we have a lot to gain from such a cooperative endeavor. We, as scientists, will have the opportunity to add to the empirical base for our theories of child development, and they, as policy makers, will have a sounder body of facts on which to base their difficult decisions.

REFERENCE NOTES

Note 1: Ming, C. The child development project. Contribution to a symposium entitled "Government Promotes Child Development: The Case Study of Bermuda," Chaired by Kathleen McCartney at the Biennial Meeting of the Society for Research in Child Development. Detroit, MI, April, 1983.

Note 2: Scarr, S. Evaluation research can be relevant to policy decisions. Contribution to a symposium entitled "Government Promotes Child Development: The Case Study of Bermuda," Chaired by Kathleen McCartney at the Biennial Meeting of the Society for Research in Child Development. Detroit, MI, April, 1983.

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